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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,262

07/26/2006

Takeaki Itsuji

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EXAMINER

HE, AMY

ART UNIT

PAPER NUMBER

2831

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DELIVERY MODE

03/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<i>Office Action Summary</i>	Application No.	Applicant(s)	
	10/587,262	ITSUJI, TAKEAKI	
	Examiner	Art Unit	
	AMY HE	2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-10 and 12-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/06/08</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Figures 2 and 5 are objected to because the empty boxes or reference numerals 202, 203, 204, 205, 501 need text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Figures 9, 10, 11A and 11B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled

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"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it contains two paragraphs. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claim 8 is objected to because of the following informality:

In claim 8, line 10, replace the typo "collating an information to" with --correlating an information of--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 5, 8-10, 12 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Ouchi (U. S. Pub. No 2006/0085160).

As for claim 1, Ouchi discloses an inspection apparatus (in Fig. 10) comprising:
a substrate (301) having integrated therein a structure (the surface of the substrate for supporting the object) for holding an inspected object (312);

an electromagnetic terahertz wave transmitting portion (306) having an antenna structure for irradiating the inspected object with an electromagnetic terahertz wave (314) ; and

an electromagnetic terahertz wave receiving portion (308) having an antenna structure for receiving the electromagnetic terahertz wave,

wherein the electromagnetic terahertz wave transmitting portion (306) and the electromagnetic terahertz wave receiving portion (308) are disposed in contact with the substrate (301).

As for claim 2, Ouchi discloses the inspection apparatus according to claim 1, wherein an electromagnetic terahertz wave generated in the electromagnetic terahertz

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wave transmitting portion (306) propagates through the substrate (301), and the electromagnetic terahertz wave receiving portion (308) receives an electromagnetic terahertz wave which is changed when the inspected object (312) is disposed in an electromagnetic wave propagation path.

As for claim 5, Ouchi discloses the inspection apparatus according to claim 1, wherein at least one of the electromagnetic terahertz wave transmitting portion and the electromagnetic terahertz wave receiving portion is connected to a high frequency circuit via a waveguide (304) for allowing an electromagnetic terahertz wave to propagate therethrough.

As for claim 8, Ouchi discloses the inspection apparatus according to claim 1, further comprising:

generation means (303a and 303b) for allowing the electromagnetic terahertz wave transmitting portion (306) to generate an electromagnetic terahertz wave of a desired frequency band; detection means (portion of the analyzer 370) for allowing the electromagnetic terahertz wave receiving portion (308) to detect an electromagnetic terahertz wave propagated through the substrate; a database (inherent in analyzer 370) for preliminarily storing physical characteristics of the inspected object; and an analyzing portion (analyzer 370) for correlating an information of an electromagnetic terahertz wave detected by the detection means with an information stored in the database to inspect the inspected object .

As for claim 9, Ouchi discloses the inspection apparatus according to claim 8, wherein the generation means is a laser oscillator (303a and 303b).

As for claim 10, Ouchi discloses the inspection apparatus according to claim 1, wherein the electromagnetic terahertz wave transmitting portion (306) and the electromagnetic terahertz wave receiving portion (308) are formed along a direction perpendicular to a thickness direction of the substrate (see Fig. 10).

As for claim 12, Ouchi discloses the inspection apparatus according to claim 1, wherein the structure (top surface of the substrate) extends from one end of the substrate to the other end of the substrate, parallel to the surface of the substrate (301).

As for claim 14, Ouchi discloses the inspection apparatus according to claim 1, wherein the electromagnetic terahertz wave transmitting portion (306) and the electromagnetic terahertz wave receiving portion (308) are disposed to face each other with the substrate (at least a portion of substrate 301) therebetween, and are in contact with the substrate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claim 3 is rejected under 35 U.S.C. 103(a) as being obvious over Ouchi (U. S. Pub. No 2006/0085160) in view of Yano et al. (U. S. Pub. No. 2006/0188398).

As for claim 3, Ouchi discloses the inspection apparatus according to claim 1.

Ouchi does not specifically disclose that the structure for holding the inspected object comprises a plurality of portions for holding the inspected object, periodically disposed to form a resonant structure.

Yano et al. discloses a structure for holding an inspected object comprises a plurality of portions (see Fig. 3) for holding the inspected object, periodically disposed to form a resonant structure (abstract).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Ouchi to disclose a structure comprises a plurality of portions, periodically disposed to form a resonant structure, as taught by Yano et al. for the purpose of obtaining a high sensitivity in a small size (see Fig. 3 and abstract).

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being obvious over Ouchi (U. S. Pub. No 2006/0085160) in view of Aikawa et al. (U. S. Pub. No. 2003/0122628).

As for claim 4, Ouchi discloses the inspection apparatus according to claim 1 as discussed above.

Ouchi does not disclose that at least one of the electromagnetic terahertz wave transmitting portion and the electromagnetic terahertz wave receiving portion comprises a negative resistance element.

Aikawa et al. discloses that it is conventional in the art to use a negative resistance element (Gunn diode 2) in an electromagnetic terahertz wave transmitting portion, for the purpose of obtaining high oscillation performance in the microwave band and millimeter band with increased output and reduced circuit loss (see [0013], [0015] and [0016]).

A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Ouchi to use a negative resistance element, as taught by Aikawa et al., for the purpose of obtaining high oscillation performance in the microwave band and millimeter band with increased output and reduced circuit loss (see [0013], [0015] and [0016]).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being obvious over Ouchi (U. S. Pub. No 2006/0085160) in view Zimdars et al. (U. S. Pub. No. 2007/0235658).

As for claim 6, Ouchi discloses the inspection apparatus as in claim 1. Ouchi does not specifically disclose that each of the electromagnetic terahertz wave transmitting portion and the electromagnetic terahertz wave receiving portion has both a

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function of transmitting an electromagnetic terahertz wave and a function of receiving an electromagnetic terahertz wave.

Zimdars et al. discloses a terahertz inspection module (13) capable of operating as transmitters (12a) or receivers (12b), or as both (transceivers) (see [0011]).

A person of ordinary skill in the art would find it obvious at the time of the invention to modify Ouchi to use a transceiver for both the electromagnetic terahertz wave transmitting portion and the receiving portion, so that the inspecting object can be irradiated and inspected from a different side.

9. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being obvious over Ouchi (U. S. Pub. No 2006/0085160) in view of Peck (U. S. Pub. No. 2005/0201896).

As for claim 13, Ouchi discloses the inspection apparatus according to claim 1.

Ouchi does not specifically disclose an inspected object insertion means for inserting the inspected object from outside the structure.

Peck discloses an object insertion means (robotic arm, see [0011]), for automatically inserting a substrate into a chamber.

A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Ouchi, to use an inspected object insertion means, such as a robotic arm as taught by Peck, so as to precisely and automatically insert the inspected object onto the substrate.

As for claim 15, Ouchi discloses an inspection apparatus comprising: a substrate (301) having integrated therein a structure (surface of substrate) for holding an inspected object (312); an electromagnetic terahertz wave transmitting portion (306) having an antenna structure for irradiating the inspected object with an electromagnetic terahertz wave; an electromagnetic terahertz wave receiving portion (308) having an antenna structure for receiving the electromagnetic terahertz wave; wherein the electromagnetic terahertz wave transmitting portion and the electromagnetic terahertz wave receiving portion are disposed to face each other with the substrate (a portion of 301) therebetween, and are in contact with the substrate.

Ouchi does not specifically disclose an inspected object insertion means for inserting the inspected object from outside the structure.

Peck discloses an object insertion means (robotic arm, see [0011]), for automatically inserting a substrate into a chamber.

A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Ouchi, to use an inspected object insertion means, such as a robotic arm as taught by Peck, so as to precisely and automatically insert the inspected object onto the substrate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMY HE whose telephone number is (571)272-2230. The examiner can normally be reached on 9:30am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Amy He/
Examiner, Art Unit 2831
February 25, 2008.